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[Reprinted from the AMERICAN JOURNAL OF OBSTETRICS, for July, 1882.]

## MASSAGE AND EXPRESSION OR EXTERNAL MANIPULATIONS IN THE OBSTETRIC PRACTICE OF PRIMITIVE PEOPLE.

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AMONG the latest and most important advances in obstetric practice is the adaptation of external manipulations to midwifery: massage and compression of the uterine globe, for the purpose of exciting muscular activity and mechanically forcing out the contents of the cavity. This is of the utmost importance in checking hemorrhage from a relaxed womb, in the expression of a retarded placenta (Credé's method) or an after-coming head, and in the rectification of malpositions (Wright's or Braxton Hicks' combined version).

Although these are recent and valued additions, so recent that they are not as yet practised by any but the more advanced obstetricians, they are the most natural, the simplest, and oldest helps in midwifery, in use among all primitive people and at all times, from the day of the ancient Hebrews and Arabs to that of the North American Indians.

Although constantly practised by primitive people for thousands of years, these methods have been recently rediscovered by learned men, clothed in scientific principle, and given to the world as new.

Before entering upon the subject proper of this paper, I will briefly outline the history of massage, which, as an alleviant of human suffering, is intimately connected with the history of medicine in its earliest days; almost equally venerable is the history of this art as applied to midwifery, and this leads directly

to the subject in hand, external manipulations in the obstetric practice of primitive people. I will classify the various kinds of massage and expression and define their uses, closing with a comparison of the natural and scientific, and of the development of external manipulation in modern obstetrics.

#### A. HISTORY OF MASSAGE.

Of all therapeutic agents now in use, not one has been so uniformly and so consistently resorted to, and so successfully practised at all times, as massage: its history leads us back into the darkness of the most remote ages. Homer, in his *Odyssey*, already tells us how beautiful women rubbed and kneaded the anointed limbs of battle-worn heroes; this was to strengthen and rejuvenate the tired body, to give tone to the muscular system.

The oldest historians and physicians, poets and travellers, speak of massage and give very accurate descriptions, and modern travellers tell us of its use all over the globe; eastern travellers especially tell us of the luxury of massage in combination with the bath after wearisome exertion or labor.

In Rome we often hear of massage: Martial so speaks of it, slaves rubbed and anointed bathers in the public baths under Nero, Domitian, and Trajan.

Thus it served to strengthen muscle and nerve, but how much more evident that it should be resorted to for the purpose of alleviating pain: we instinctively place our hands upon a spot which pains, and by pressure seek to relieve it.

In acute diseases, Hippocrates advises deterotive kneading, the douche, and the anointing of the body; those procedures which, combined, form part of the bath as prescribed for therapeutic purposes. In treating of the diseases of the joints, the brilliant Sage of Cos gives utterance to these memorable words: "the physician should be well versed in many arts, and among others, in that of massage; massage will strengthen the relaxed ligaments of a joint, and relax those which are too rigid." The father of medicine knew that by well-directed manipulations the ligaments could be strengthened, could be rendered pliable, and movement thus restored. Herodotus also gives careful directions as to this method of treating such disturbances.

In China and India, massage has been known since ancient times. The Chinese knead or rub down the entire body with their hands and exercise a gentle pressure on all the joints, together with a certain traction which is followed by a distinct noise, as is sometimes made by persons playfully distending the joints of the fingers. Masseurs wander about the streets and cry out, lauding their talents. The Chinese themselves brought this art from India; that ancient Indian work the *Artharvaveda*, discovered towards the end of the last century by Sir William Jones, contains a part devoted to medicine—the *Ayurveda*; in this every one who looks for perfect health is advised to rise early, rinse his mouth, and then undergo a process of shampooing or massage. Upon the Pacific Islands, also, massage is well known, as we learn from the writings of Cook and Captain Wallis. The practice of kneading the body with the hands was imported into Europe by the crusaders from Syria and Palestine, together with the use of the warm bath. Unfortunately the art soon fell into the hands of quacks, but it was again brought within the sphere of medicine proper by Fabricius ab Aquapendente, the scholar of Fallopia, who utilized it, especially for affections of the joints, such as ankylosis and others. At the same period, combined active and passive motion was advocated by Mercurialis, Paracelsus, and Prosper Alpini, who highly praises flexion and massage in his work, *De Medicina Ægyptiorum*, Venice, 1591, and says that in Egypt massage was so popular that no one could leave a bath without undergoing the process. The advocates of the art in the last century were Hoffman and Tissot.

During the first years of this century the translation of the book of *Cong-Fou*, of the *Bonzae* by Tao-Ssé, by the missionaries Hue and Amiot, created a great sensation; and this seems to have formed the basis of Peter Ling's Swedish gymnastics as proven by Dally and Estradere, although not in any way mentioned by Ling himself. Still Ling and his successor Branting did much good. In the northern countries, in Russia, Prussia, in Denmark, and especially in Sweden, the Kinesitherapie, or treatment by massage, is highly esteemed; and the names of Ling and Meding are greatly honored in connection with this method. The most illustrious practitioners of the day throughout Europe are beginning to resort to it in

various affections. Among them I will mention especially the names of Blache, Sée, Roger, Guersant, Gosselin, Récamier, Sarlandier, Metzger, and above all Nélaton and Troussseau, and in obstetrics, Kristeller, Credé, and Martin.

*The numerous manipulations practised in massage will be best understood if divided into four classes.*

First, a gentle rubbing (effleurage, friction douce). An easy gliding of the palmar aspect of the hand and fingers over the parts. The maximum of pressure hereby exercised ought never to be greater than the weight of the gliding hand.

Second, pressure (pression, friction forte, massage). A firm intermittent compression of the muscles and their coverings by the hands or fingers. The force used is measured only by the strength of the masseur.

Third, kneading (petrissage, malaxation). A methodical pressure exercised upon the muscles with the entire hand or fist in a perpendicular direction, best compared to the kneading of dough.

Fourth, functional movements (mouvements, function). Variable attitudes and motions undertaken by the patient with the assistance of the masseur upon various movable parts of the body, such as the sufferer had not been able to freely practise alone: supination and rotation, for instance.

*The physiological effects* are readily seen. The circulation is improved, absorption is furthered, pain is eased, the nerves are strengthened, the nervous system is especially quieted, and the physiological activity of the body increased without cost of fuel—muscular or nervous exertion—to the patient. There is a probability of a greatly stimulated idio-muscular contractility; and it seems as if massage had an effect similar to electricity upon the muscles. The contractions aroused by massage are a great factor in the process of absorption generated by it. The importance of massage in obstetric practice is at once evident. Its soothing, nerve-quieting influence allays the excitement of the patient; the muscles are stimulated to increased activity; and these abdominal manipulations will serve a most excellent purpose in uterine inertia. They are absolutely harmless, uterine activity is increased, the expression of the child hastened, and, after it is delivered, the uterine contraction furthered, and in case of atony, that is overcome and hemorrhage checked;

but pressure upon the fundus, the direct *vis a tergo*, is, above all others, one of the most important factors in obstetric practice, and, by reason of its simplicity, within reach of every one. Recently rediscovered by scientific obstetricians, primitive people, thrown upon their own resources, have practised these methods at all times.

#### *B. HISTORY OF EXTERNAL MANIPULATIONS IN OBSTETRIC PRACTICE.*

It is evident, then, that external manipulations—massage and expression—should have played an important part in the history of midwifery among primitive people at all times. First of all, it was their only help; the only way in which they could force labor was the expression of the unwilling fetus from the womb. The *vis a tergo* was their only resort; and secondly, if properly applied, the methods are unexcelled and correct, both upon mechanical and physiological principles. I have in my former writings minutely described the obstetric practice of people, savage and civilized, in all ages, so that I need not here dwell at length upon the history of these manipulations.

There is hardly a people, ancient or modern, that do not in some way resort to massage and expression in labor, even if it be a natural and easy one. An obstacle or irregularity of any kind they always sought to overcome by these methods. Hippocrates, in his writings, says: “If you put a fruit-stone into a narrow-neck flask, you may find it impossible to bring it out crosswise; and even so it is with a child when it lies across the mouth of the womb.” In the case of plethoric young women, venesection was performed often without effect. Sternumtories were given, and the nose held fast when they began to take effect. If this did not suffice, a still rougher mode of practice was adopted: the patient was laid on her back in bed, while the shoulders and upper part of the body were bound fast, and the end of the bed next her head was then raised and allowed to fall with a jerk, which was supposed to aid in the expulsion. Or four women seized each an arm or a leg, and thus jerked the patient up and down as she lay in bed. If a malposition existed, this same succession was used with the feet high, so as to shake the child into the roomy portions of the womb.

In Greece, when a woman was in labor, she seated herself

upon a tripod, the nurse seized her from behind around the middle of the body, and rubbed and pressed upon the abdomen with both hands. The ancient Arabian physicians, among them Rhazes, recommend massage, firm rubbing of the abdomen in childbirth; and even now all the Arab tribes of Caucasian origin, on the banks of the Caspian Sea, have nurses to massage the abdomen and the lumbar region. Common as the practice is in Asia, resorted to in all ages for various diseases, it was equally used in labor cases for the double purpose of increasing the force of the uterine contractions, and of causing the expulsion of the ovum by pressure.

Modern means of communication, as well as medical schools, are rapidly doing away with these primitive customs, which were frequently practised in more remote regions of our own States in the early parts of this century. Many of our older physicians tell of their early labor cases in the farm-houses of Virginia, Ohio or Georgia, where the patient was delivered upon the lap of her husband, whose encircling arms exercised a steady pressure upon the descending uterus; even now expression is occasionally practised in this way.

Among our Indians, at least such of them as are not yielding to the civilizing influence of the agency physician or the army surgeon, massage and expression are common, whether the parturient occupies the kneeling, sitting, recumbent, or semi-recumbent position; malpositions are corrected, and labor hastened by the hands of an assistant, who kneads the loins and abdomen, and exercises pressure by the palm of the hands placed upon the uterine globe. Among the natives of Mexico, of Central and South America, it is still common practice. At the time of the Incas, the exit of the child was hastened by the firm compression by an assistant's arms, which closely encircled the waist of the sufferer. Among the Calmucks, the parturient squats down upon her buttocks at the foot of her bed, and braces herself against a pole that descends obliquely from the top of the hut, very similar to the practice now in use among the Mexicans, and the assistant clasps her in her arms, and, when labor begins, seats herself upon the ground, takes the patient upon her knees, and presses and kneads the abdomen from above downward. If the strength of the patient begins to fail, she is placed upon two

boxes, and a strong man, standing behind her, compresses the abdomen with all the strength of his arms. Among the Tartars the nurses hang the woman up by the arms, and compress the abdomen with bandages; sometimes they place a heavy weight on the abdomen.

In the East Indies, they knead the back and loins—*shampoo*. In the seventeenth century, massage was practised in Siam in difficult labors. Hureau de Villeneuve has described this practice under the name of *Cong-fou*. He says that its object is to lessen pain, and explains it by reflex action. The manipulation consists essentially of light rubbing, touching, delicate pressure, tickling, and friction with the ends of the fingers. In this the nurse must be methodical. The manipulations must be made during the pain, and not only upon the abdomen, but also upon the perineum, the groins, the hypochondrium, and over the diaphragm. Among the Japanese, *Ambouk* is a kneading of the body, with the object of expelling the child. They also have a practice called *Seitaz* or version, in which, by external manipulation, they pretend to rectify malpresentations.

The Malays put hot bricks upon the woman's abdomen, and press upon the bricks with all their force. The Negritas clasp the trunk of a bamboo and press against it. In New Caledonia, they use violent pressure and blows of the fist in hard labor. In Senegal, some one sits upon the patient's abdomen. In Old Calabar, the woman is put in a sitting posture, and the nurse compresses the abdomen with the hands anointed with oil. Among the negroes of New Guinea, the parents or friends of the woman assist her by beating or kicking her in the stomach. In Kabylie, no manipulations seem used in ordinary labor, but, what is rare among other people, traction upon the parts already expelled is made; if, however, labor is slow, an assistant butts the patient in the abdomen. She places her head upon the pregnant womb, and clasping her hands behind the patient's back, presses first upon the back, then upon the abdomen to hasten the expulsion of the child. Some of our own Indians strap a pillow of some kind to the abdomen, and lie flat upon the ground, thus to express the fetus; others press the abdomen upon a staff firmly planted in the ground; but, as I have already stated, by far the most common methods

are massage of the back, of the loins, and abdomen, to increase the uterine contraction, and the pressure upon the abdomen by the encircling arms, or by the hands laid upon the uterine globe to express the fetus.

**C. THE VARIOUS KINDS OF EXTERNAL MANIPULATION—MASSAGE AND EXPRESSION—IN THE OBSTETRIC PRACTICE OF PRIMITIVE PEOPLE.**

I will endeavor to classify the various forms of external manipulations in use among primitive people, taking first, as the most simple, the different forms of (1.) Expression. These are usually practised by an assistant, most frequently (1) by the arms encircling the patient's abdomen, the hands usually clasped in front over the uterine fundus, thus forming a powerful compressor.

(2.) This living compressor may be replaced by a bandage, the ends of which are in the hands of an assistant.

Another method (3) is to draw the patient's abdomen across a rope or pole, so as to force down the uterine globe. In more difficult cases (4), the patient is suspended by a rope, and the uterus stripped down by the weight of an assistant who hangs upon the abdomen of the sufferer. And (5) an equally uncouth method of expressing the ovum is by the feet of an assistant, or sympathizing friend, who tramps upon the back or belly of the patient, or by a weight placed upon the enlarged abdomen. In some instances, the patient herself exerts the external force (6) by the tightening of a belt; (7) by leaning with the uterine fundus against a staff firmly planted in the ground; or (8) by lying flat upon the ground with a pillow under the abdomen.

II. Massage, or the shampooing of the abdomen, is a somewhat more complicated operation; in almost all cases practised by an assistant, and usually in connection with simple expression. I will merely refer to

III. The shaking out of the ovum; and

IV. Permanent pressure.

I. EXPRESSION.—Simple expression is resorted to among primitive people in almost every labor; it is the most rude and primitive form of external manipulation, and at once suggests itself as an aid to the forces of nature when assistance seems

called for. It is used both in the delivery of the child and of the placenta; and the method which first suggests itself is the one most commonly resorted to.

(1.) *By the arms of an assistant encircling the patient's abdomen.* That this has been so commonly resorted to at all times and by all people is evident when we remember that in so many cases the patient is delivered seated in the lap of an assistant, be it on a chair, or stone, or upon the ground. This position was common in ancient times and modern; I will again refer to the ancient Peruvian urn with the patient seated in the lap of her husband; the method is still in use upon the South American coast, in Peru, in Chili; it was common among the ancient Hebrews, in Rome, and in medieval Italy; also in Greece, ancient and modern. We find it in Africa and India; rarely among the American Indians, where the lazy male is unwilling to undertake this laborious task; here and there among the Scotch and Welsh; in various of the backwood counties of our own States; among the Sandwich Islanders; the Bedouins; and the Kalmucks of Russia.

The same method is resorted to whether the patient is delivered in a standing posture, as among some of our Sioux tribes, or among the Crows and Comanches, where the patient kneels, the assistant kneeling behind her, clasping the abdomen firmly above the uterus, and keeping up steady pressure during the entire labor. Among the Nez-Percés and Gros-Ventres, where the patient assumes the squatting posture, the encircling arms of the assistant exercise the same steady compression. Among the Kootenais, where the parturient is upon her hands and knees, the same method is in use; whilst the woman is on her knees, the face touching the ground, the hands one above the other grasping a pole planted in the ground, and the legs apart, a man straddles her across the buttocks, and with his hands clasped around her waist exercises a steady pressure on the abdomen, pulling, however, only during a pain. The way in which the pressure is exercised is, of course, much the same among different people whatever be the position assumed.

In some rare instances, in the mountainous portions of Germany, the woman is delivered suspended, in the arms of her husband, who seizes her from behind, and raises her up so that

she is bent backward, her toes barely touching the ground. In this position, of course, with his hands clasped above the uterus, a steady and very powerful pressure is exercised. In other cases, as among the Brûlé Sioux, and among some of the Iroquois of Canada, the patient hangs to the neck of an assistant, who exercises pressure by forcing his abdomen against that of the patient, his arms around her waist, his hands clasped at her back. A similar method of pressure is exercised by the Japanese obstetrician in correcting mal-position during the later months of pregnancy. He, however, uses his hands rather to knead the abdomen than to compress the womb, but very much in the same way as the Sioux assistant.

In the case of a patient seated in the lap of an assistant, the description I find given of a labor among the Sandwich Islanders is characteristic: It is the duty of this assistant, upon whose lap the parturient rests, to grasp the waist above the abdomen in such a way that he or she can press down upon the uterus and its contents with a considerable force, not relaxing this grasp to allow the fetus to recede. The force of the pressure is backward and downward, increased during the pains, and kept up in a moderate steady measure during the interval to prevent a loss of the advantage gained during each pain.

This is resorted to among many of the Mexicans and half-breed Mexicans; among the Andamanese; among such of the Hindoos in India as are delivered in the lap; and among the Burmese. In case that the patient kneels in labor, which is perhaps the most common position among the Indian squaws, the assistant either kneels behind the patient, or stands astride of or between her feet, and encircles the abdomen with her arms, exercising the same constant pressure as when other positions are assumed. This custom we find prevalent among the yellow races as well as the red, in Kamtschatka and Mongolia; less common among the black, in Ethiopia, and also in New Zealand.

(2.) *A bandage passed around the body and tightened by assistants, supplants, in some cases, the encircling arms: this is not so much the usual practice in ordinary cases, but rather*

a severer measure adopted in retarded labor. A description of this method is found in the *Medical Times and Gazette* for



FIG. 1.—Bandage as used in Mexico.

August, 1861, describing a labor at Monterey, California: "The patient was seated in a chair, seizing with her hands a

rope pendent from the ceiling. A bandage was placed about her body, the ends of which were crossed behind, each of which was grasped by an assistant, whose duty it was to make firm traction upon the sheet, and especially to draw tightly as the abdomen diminished in size. They were particularly instructed to make strong traction in the intervals between the pains, lest the abdomen during this time should resume the position it had before the pain came on." Similar accounts I hear from Mexico, from South America, from the north of India. The Finns, in difficult cases, when the child will not advance, force it out by tight compression of a strap placed around the abdomen; the Calmucks likewise follow this custom.

The Klatsops use a bandage only for the expression of the after-birth, and this appears to me to be a very reasonable procedure; a bandage is placed about the abdomen of the patient after the delivery of the child, thus not only aiding the expression of the placenta, but preventing the expansion of the womb; in other words, preventing post-partum hemorrhage, and furthering the necessary contractions. The Piute Indians make use of a bandage in a somewhat different way; they clasp a leather girdle around the waist above the fundus of the womb, not so tight-fitting but that it will slip up and down on the body; then, as the expulsive pains come on, three, four, or more women push the girdle down after the escaping child. They regard the descent of the child as voluntary on its part, and push the girdle down to support it in any progres it makes from time to time, that it shall not lose its foothold and slip back, and thereby lose all the distance gained by the effort for food and day-light: so as labor progresses, the child's foot-steps are followed up by this girdle, until it is finally expelled; or, as they say, it has asserted its freedom and broken its fast.

(3.) *Drawing the abdomen across a rope or pole.* A peculiar custom, which we have not found elsewhere, exists among the Winnebagos and Chippewas. In difficult cases, more common among the more civilized Indians who have half-breed children, as is so frequently found where races mix, a cross-bar or rope stretched across the tent is always on hand, as it gives a support to the patient who kneels in labor; but when this will not advance, the woman is generally drawn over the bar, face down-

ward, the upper part of the stomach resting upon the wood, and several persons, all women, supporting her arms, gently draw and push her over the bar or rope. This, I am told, is the only kind of expression employed among these tribes; an instance of this kind is related to me by Surgeon W. S. King, U. S. A., in which a patient was so drawn over a rope suspended between two trees.



FIG. 2.—Management of difficult labor in Siam.

(4.) *Stripping down the abdomen.* This is only resorted to in desperate cases; but, although not common, seems to be the last resort among various people. I hear of it in Siam, among the Tartars, and among the Coyotero-Apaches; and, remarkably enough, precisely the same method is adopted in each instance. The parturient is suspended by bands

beneath the arms, and one, sometimes two, of the attendants grasp the body of the patient in their arms, and strip down the womb with considerable force; a kind of "all pull together," as Dr. Reed, Surgeon U. S. A., expresses it. He says that this energetic manoeuvre generally suffices, as he never heard of a case that resisted this method. That is very likely, as the fetus will find an outlet somewhere, be it *per vias naturales* or through the abdominal walls. The child must out. Other means they have none; hence, it is the best that can be done, although we should think that the mother, if not the child also, must inevitably suffer.

(5.) *Expression by means of the feet.* A very effective and not very delicate method, pursued by experts among some very primitive people, is, in difficult cases where the ordinary methods have not answered, to stand upon the abdomen of the patient, with the heels upon the thorax, the toes pressing upon the uterine fundus, and thus to express the child; or, as among the Negritas of the Philippine Islands, or the Waswaheli, among the Siamese and Burmese, an old woman, who takes the place of the midwife, places her left foot upon the patient's body, pressing upon the fundus, while she drags down the baby with the right hand. A report from Siam (Samuel R. House, M.D., *Archives of Med.*, June, 1879) states that a favorite way to expedite matters is to press with great force on the abdomen and its contents, shampooing vigorously with the thumbs and fists, and even to stand upon the poor woman's body, crowding the heels upon the front or side of the distended uterus, and without the slightest reference to or knowledge of the condition of the os uteri. In Ceram, they place the patient flat upon her stomach to force the expression of the child. The Negritas, also, are fond of placing bricks or stones, but hot, upon the abdomen of the patient to insure expression.

In some few instances, the parturient practises expression herself, either with her own hands, by the tightening of a belt, or by pressing against a fixed body. I have seen but one statement, and that is from the Indians of the Pacific slope, that the parturient uses her own hands to compress and press down the womb. How much more useful than the senseless grasping of bed-clothes or assistants by the civilized lady!

(6.) *The belt.* The belt, which is, of course, the same as the bandage, only that it can be used by the patient herself, is resorted to by some of the more primitive of Russian tribes, and by some of our own Indians, especially the Sioux, and there, more particularly, for the expression of the after-birth. The belt called the squaw belt, a broad leather strap with several buckles, is commonly used; after the delivery of the child, as the patient stands up, her legs apart, she herself draws tight the belt, and thus expresses the after-birth, which readily drops out by sheer force of gravity, assisted by this forcible *vis a tergo*.

(7.) *Pressure against the staff.* The Indians of the Uintah Valley Agency are delivered in a kneeling posture, but as soon as the child is expelled, the patient, who continues to drink freely of hot water, arises to her feet, places a folded cloth on her abdomen, and leaning forward over the stake, some three feet in length, which has served her as a support during labor, she raises her body upon it, thus exerting considerable pressure over the hypochondriac region and favoring the expulsion of the placenta; and it is thus delivered without any further assistance. This practice also exists among the Crows, Creeks, and similar tribes. The Negrita woman, who is unable to allow herself the assistance of the medicine man, presses her abdomen against a bamboo, in order in some measure to replace the expression by the hands of an assistant. The squaw of the Pacific coast, who walks about during the first day after confinement, steps about slowly with a staff, frequently bending the body forward so as to bring the abdominal walls immediately over the region of the uterus against the upper end of the staff, which is protected by the hands of the woman. Thus, the flow of the lochia is facilitated and compression of the uterus furthered.

(8.) *Lying prone upon the stomach upon a pillow.* This peculiar method, so far as I can learn, is practised only by the Creek Indians. The mother straps the pillow tightly to her chest with a belt, lies flat upon her face, and, as the labor proceeds, the strap is buckled tighter and tighter, until the expulsion is accomplished, the pressure being due, not so much to the tightening of the strap as to the pressure of the body upon the uterus, the pillow simply preventing the upward motion of

the fundus. In Ceram, Loango, and other districts of Central Africa, the patient is also placed upon the stomach, if the labor does not progress, and the expulsion of the child is hastened by tramping upon the back of the sufferer, or placing heavy weights upon it.



FIG. 3.—Massage and expression as practised in Mexico.

**II. MASSAGE.** Massage, by which I understand a more complicated manipulation of the abdomen—the *Shampoo* of the Indies; the *Cong-Fou* of the Chinese; the *Amhouk* of the Japanese—serves to correct the position of the child, and to

stimulate the contractility of the uterine muscles, and is used wherever external manipulations are resorted to, almost always in connection with expression. It is used to correct malposition, to produce abortion, to stimulate labor pains, but, above all, for the expression of the after-birth and the prevention of post-partum hemorrhage. These manipulations are usually practised very much in the same manner whatever position the patient assumes; and they serve the same purpose whatever the position of the patient may be—kneeling, squatting, resting in the lap of an assistant, or semi-recumbent—and they are best illustrated by Fig. 3, which is from a photograph taken for me amid great difficulties by my scientific friend, Prof. G. Barroeta, of San Luis Potosi, Mexico.

The patient kneels on the spread (B) prepared for her; this consists of a sheep-skin (S) covered with a cotton blanket (C) and a zarape (Z). Upon one end of this is put a cushion (H), upon which the patient places her head when she assumes the recumbent posture after delivery. The position of the parturient is upon her knees, supporting herself by the cord or lasso (L), which is suspended from the beam (W). Two assistants perform the customary manipulations. The *partera*, the more experienced and older of the two assistants, kneels before the sufferer; it is her business to manipulate the uterus, pressing and rubbing the fundus, at times placing one hand on the vulva, and preparing the coccyx. The younger, the *tenedora*, kneels behind the patient, pressing her knees upon her hips, and clasping the hands over her stomach, thus exercising pressure by the encircling arms, whilst the more experienced *partera* practises massage. (Dr. Kellogg.) The *tenedora* assumes more active duties in difficult cases, either in retarded labor or retained placenta. She then raises the patient by her arms, shakes her as she would a sack, and lets her fall, partially catching her as she drops, with a shock and sudden compression of the abdomen whilst the parts are being kneaded. Although the methods are very much the same among all people and in all positions, slight differences are here and there observed; for instance, among the Papagos, one of the assistants places herself in a kneeling posture behind the patient, with one knee pressing upon the lumbar region, while she grasps the body of the sufferer with both

hands immediately under the ribs in front. The other assistant places herself in a kneeling position in front of the patient, and with the palms of her hands rubs the abdomen thoroughly, the pressure being constantly exercised downwards from the spine of the ilium to the pubis. They appreciate the difference between primipara and multipara, and with the former they do not resort to the same degree of pressure and friction as in the multipara, being evidently aware of the more firm tone of the abdominal muscles, and of the longer time needed. In Africa and in India, we find not unfrequently that warmth and oil aid in this process, as among the Gros-Ventres, where the assistant greases her hands with turtle fat and warms them over the hot embers, and quickly applying the heated hands to the patient's abdomen, rubs and presses it downward and backward. These manipulations are, of course, more readily practised with the patient in a kneeling or squatting position, and especially when seated semi-recumbent in the lap of an assistant, whose encircling arms afford the means of compression. But with the necessary variations, it is the same whatever position the patient assumes. For instance, among the Hoopa, Klamath, or Penemone Indians, the patient lies down in a semi-recumbent position, whilst an assistant kneels at either side, rubbing and pressing the abdomen. So, also, among the Siamese, where the patient is on her back, a woman takes position on either side, and they begin by forcibly pressing the abdomen backward and down for three to five hours, and, if then they fail to expel the fetus, one tramps upon the abdomen, and, as we have learned, if this does not succeed, the more forcible method of suspension is resorted to. Instead of the hands, the thumbs and fists are used by some. For instance, as in Siam, where they shampoo the abdomen vigorously in this method, stroking and pressing it downward at the same time. Among some people I find no reference to the use of massage, but have considered this more as an omission upon the part of my informants. For instance, among the Chippewas and Blackfeet, lower and upper Yanktonais, nothing is said of the use of massage by my correspondent. So, also, among the Santees and Dakotas, the Cherokees, Choctaws, Chicasaws, Seminoles, Cheyennes, Arapahoes, Assineboines. It is, however, an almost universal agent, and, whether

among our own Indians, the Mexicans, or natives of South America, the Vedas of India, the ancient Ainos, or the modern Japanese, the inhabitants of the Caucasus, or of the Himalayas, of the Australian Islands, or of Africa, we find that massage is everywhere the main and almost the only reliance in labor.

III. SHAKING UP OF THE PATIENT.—Though not strictly within the sphere of this paper, I will briefly refer to some of those peculiar and barbarous methods to which these primitive people resort in their despair. We have already observed how, in Mexico, the *tenedora* raises the patient up and drops her, catching her with a shock so as to shake out the uterine contents, shaking out the child from the womb as she would flour out of a sack. In Southern India, they shake her several times to promote delivery, but, if this does not answer, they roll the patient upon the ground, or suspend her by her feet and shake her several times. The object of this is, evidently, after they have seen that the child cannot be expelled in the natural way, to throw the fetus out of the pelvis proper into the roomier upper portion, so that it may change its position, and come with head or breech first. We find a precisely similar custom among the Nez-Percés Indians, who take the patient, if labor is prolonged, reverse her, and whilst the head rests upon the ground, shake the body vigorously in the air; then they lead her to a stake again and see if the condition of affairs is at all improved; if not, the process is again repeated. This they do several times, and, if finally it proves of no avail, the midwife introduces her hand, and pulls at whatever she can reach. If it happens to be a foot, well and good; if it happens to be an arm, the patient will probably be so injured that death results, as my correspondent tells me he has never heard of a woman surviving the graver accidents of parturition. The Estonians hold the patient in the air, shaking her vigorously if labor is retarded. In Syria, the patient is rolled in a blanket if she is not confined within twenty-four hours after the commencement of labor, and four male or female friends seize the corners of the blanket and roll the poor woman about in various directions, and bounce her up and down to facilitate confinement.

IV. PERMANENT PRESSURE.—Bandages of cloth or leather ropes or belts, are occasionally resorted to, but are not found as

often as in the lying-in room of civilization. They are used here and there in pregnancy, labor, and child-bed. In pregnancy, the binder is used in Japan from about the fifth month on to prevent the growth of the child, so that it may not become too large, and delivery may be easy. In India and in Burmah, as well as among one or two of our own Indian tribes, the bandage is used, tightly worn, after the seventh month, in order that the uterus may not ascend too high, that the child may not have so far to go when it wishes to escape. In labor, the simple binder is rarely resorted to. Usually when the binder is applied, it serves as an active means of compression; but among one of the Indian tribes, as we have seen, the simple belt is used, which is pressed down so as to follow the uterus with each pain. In child-bed, or rather in the time following delivery, as the bed is but rarely resorted to, the binder plays a very insignificant part. We have seen, especially among the Sioux, the squaw belt used, but it is worn for only, perhaps, twelve hours after labor. In Mexico, a tight bandage is sometimes used, or a rope. In Old Calabar, a simple handkerchief answers the purpose. The Kiowas, Comanches, and several other Indian tribes use it; but whether travellers or other authorities who have written upon the subject neglected to mention the binder or not, I rarely hear of it.

#### *D. THE USES OF MASSAGE AND EXPRESSION.*

In speaking of the different kinds of external manipulations and the various methods of applying them, we have naturally spoken to some extent of the purposes for which they are used. But it may be well to consider these somewhat more in detail, and I will endeavor to describe the various purposes served by these external manipulations in pregnancy, labor, and in child-birth.

**I. PREGNANCY.**—Steady pressure, as we have seen, is used to prevent the undue growth of the ovum; but massage properly is resorted to for the purpose (1) of *correcting malpositions*. Thus, in Japan, the medicine-man manipulates the abdomen of the patient, who clings about his neck, pressing his shoulders against her breasts, and pressing his knees between hers, so that she is firmly supported. Then he practises a lateral massage with his hands, beginning at the seventh cervical vertebra, and rubbing downward and forward, rubbing also the nates and

hips with the palms of his hands, repeating the movement from sixty to seventy times every morning after the fifth month. This, I judge, is only in case of wealthy or handsome patients, or when malpositions are expected for certain superstitious reasons. By far more frequently is massage used for the purpose (2) of producing *abortion*. Among some of our own Indians, the Piutes among others, many of the natives of Australia, the inhabitants of the Sierra Leone, and of the interior of Africa, the Loango negroes, and others, produce abortion, either by firmly kneading and rubbing the abdomen with the hands, or pounding and working it with their fists. Many do it for criminal purposes, others because they dread the often fatal labor with half-breed children. This is a somewhat remarkable circumstance, but true among our own Indians upon the Pacific Coast and in the interior, in Australia, and in India, that labor following intercourse with whites is always tedious and dangerous, frequently ending in the death of both mother and child. Hence they produce abortion in preference to undergoing this ordeal. In India and in Africa, abortion is often produced when the mother is suckling one infant and finds herself pregnant with another.

II. LABOR.—Massage in (1) *normal labor* is almost invariably used unless the case be a very simple and rapid one, or the poor sufferer be without friends and means. It serves the purpose of improving or correcting the position of the child, of stimulating the uterine contractions, and of directly aiding by mechanical pressure the muscular action. A slight variation, ordinary flexion and pressure upon the abdomen, regular massage, combined with expression, is used in ordinary cases.

(2.) *Malposition*.—In cases of malposition, which are only discovered by the simple fact that the child is not expelled in proper time, more violent means are resorted to, such as forcible kneading, shaking, tossing in a blanket, and tramping upon the abdomen. Thus, by violent means, there is a possibility of forcing the child into its proper axis, with breech or head in the pelvis, and this done, of forcing it out through the natural passages. These external manipulations are, as we have seen, their only resort; and as death is the consequence of an undelivered child, every means in their power must be taken to expel it; and these very forcible means must almost

inevitably force a rupture somewhere. If the child is not crowded out through the natural outlet, a place of least resistance will be found elsewhere; the womb or abdominal walls must give way. The child must out or the patient must die.

(3.) *Placenta.* The placenta usually follows the child, but unless this is the case, massage and expression are invariably resorted to. Frequently the patient retains the same position which she assumed during labor, and the attendants continue the same manipulations until the after-birth is expelled. Rarely does she assume a different position, as among the Sioux, where the squaw belt is used, the parturient jumps up after the delivery of the child, draws tight her belt, and thus forces out the placenta. Then, again, others press with the abdomen against a staff fast in the ground. In short, the milder means of massage and expression are used in this stage of labor by the various people. It may be again remarked that primitive people, odd as it may seem, rarely pull upon the cord, but in most instances use the *vis a tergo*, stimulate the activity of the womb by friction of the fundus, and press out the contents. Massage, combined with expression of various kinds, never very forcible, is used in this stage of labor.

III. CHILD-BED. I have not found any reference to the use of massage after the expulsion of the placenta. Expression, of course, does not come in question; but permanent pressure, as we have already seen, is occasionally used. I will not here again refer to it, as being really foreign to our subject. In some few instances, as among certain tribes upon the Pacific coast, some pressure is at times exercised upon the abdomen during the first day after confinement, the patient walking about, occasionally stops to lean with the abdomen upon a staff, and the compression of the uterus forces out the discharge. Among some of the Indian tribes, but especially among the natives of Africa and India, the infant is thoroughly kneaded and massaged after each bath; and this very excellent procedure undoubtedly serves to strengthen the tender muscles.

#### *E. THE DEVELOPMENT OF EXTERNAL MANIPULATION IN RECENT OBSTETRIC PRACTICE.*

The use of external manipulation in child-birth is, as we have seen, a most ancient and venerable practice, forgotten by

civilization for ages, and only of late years again accorded the importance which simple-minded, primitive people have always conceded to it.

Phélieppeaux, in his "Etude Pratique sur les Frictions et le Massage," Paris, 1870, justly says: Within a few years, in the presence of numerous well-authenticated and, we may almost say, marvellous facts, a return has been brought about to a legitimate and long-forgotten practice. To-day the most illustrious masters look kindly upon a method of treatment as old as the world, which has now been deprived of the surrounding fables and charlatanism. The use of external manipulations in obstetric practice has rapidly advanced in importance in the course of this century. In 1812, Wigand discovered the important fact that, by the aid of external pressure, mal-positions could be corrected; but his views, although addressed to the academies of Berlin and Paris, were neglected and forgotten: yet he had only stated distinctly what Hippocrates had vaguely indicated, and what Jacob Rueffius and Mercurius Scipio had urged. The Hamburg obstetrician was forgotten until 1859, when the translation of his work by Belin and Her Gott appeared in Strasburg. This was taken up by Stoltz and Cazeaux. Then comes Wright, of Cincinnati, and, soon after, Braxton Hicks, to whom the credit has so long been unjustly given; and in 1853 and in 1860, Credé, who so earnestly advocated delivery by means of expression, endeavoring to imitate nature as nearly as possible by provoking uterine contractions, forcing the descent by a *vis a tergo*, the hand never touching the genitals of the patient, the entry of air, as well as traumatism, were impossible. Credé's method was already indicated by Busch in 1803. Then, in 1867, comes Kristeller, advocating uterine expression for the delivery of the child itself; and, in 1865, Martin, of Berlin, attempted to obtain the after-coming head by means of manual expression after the delivery of the body. Although Credé's method is so perfectly natural, simple in principle, and easy in application, it has yet but slowly asserted itself. Even in Germany, among his immediate surroundings, it was a long time before the method gained ground. (*L'Expression Utérine*, A. T. Suchard, Paris, 1872.) In 1856, von Ritgen urged that the forceps should never be used without the accompanying aid of manual expression, and

Seyfert, of Prague, pointed out the merits of these methods at every possible opportunity, on account of his great aversion to all such methods of delivery which necessitated the introduction of hand or instrument into the genital tract. He sought to obtain the delivery of the uterine contents as does nature herself, by pressure from above, not by traction from below.

Massage and expression being the only resort in the hands of primitive people for the completion of difficult labor, they intuitively, by instinct and by long practice, not by scientific reasoning, of course, have brought them to a certain state of perfection, although brute force is more relied upon than dexterous manipulation. The methods are so simple, so natural, and so thoroughly in accordance with sound mechanical principles, that they have produced good results. Deprived of the brutality of physical force and aided by science, these very means which have so long and so well served the ignorant will attain a high degree of perfection, and will serve by far better the scientific obstetrician.

#### LITERATURE.

I have not here referred to my authorities, as I have, in my earlier papers, given due credit to the numerous professional brethren who have so kindly and so indefatigably aided me in my work. I have compiled the facts here given from the same data; *i. e.*, information gathered from individual friends, from the letters received from the Surgeons of the U. S. A., and from the Agency Physicians in response to the circular letter of inquiry, sent by Major Powell, of the Bureau of Ethnology of the Smithsonian Institution; from medical works and the reports of travellers, especially the *Zeitschrift für Ethnologie*, and the following books and papers, bearing more particularly upon massage. From the first three I have drawn largely; of the last three I have only seen extracts.

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